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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,526	03/29/2004	Hardayal Singh Gill	HITG.069PA(0561)	1922

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EXAMINER

EVANS, JEFFERSON A

ART UNIT	PAPER NUMBER
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2627

DATE MAILED: 08/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/811,526

Applicant(s)

GILL, HARDAYAL SINGH

Examiner

Jefferson A. Evans

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21 is/are allowed.
- 6) ☒ Claim(s) 1,5-8,10,11,15-18 and 20 is/are rejected.
- 7) ☒ Claim(s) 2-4,9,12-14 and 19 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Claims 1 to 21 are pending.

1. Claims 7, 10, 17, and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention

A...Claims 7 and 17 - It is unclear whether "CoFe/NiFe alloy layer" is meant to establish that the free layer can be a CoFe alloy or a NiFe alloy, or that the free layer includes CoFe and NiFe. And if it is the latter, are CoFe and NiFe in separate sublayers or are they mixed together in the same layer?

B...Claims 10 and 20 – line 2 in each is unclear as it refers to the bias layer is present in the passive and active layers and exchange coupling occurs between different parts of itself. This appears to contradict the remainder of the disclosure which seems to indicate that exchange coupling will occur between the biasing layer and the high coercivity layer.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 5-8, 11, 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (U.S. 6,751,073). Hasegawa discloses (figure 2) a

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current-perpendicular-to-plane (CPP) GMR/tunnel valve (TV) sensor, comprising: a sensor stack having a free layer 30 forming an active area; a spacer layer formed over the free layer of the sensor stack; a biasing layer 33 having a portion disposed over the free layer, and a high coercivity layer 32 formed adjacent the sensor stack for pinning the biasing layer, the biasing layer maintaining a direction of magnetization in the free layer until influenced by a readback field. A pinned layer 26 may take the form of CoFe layers separated by a Ru layer (column 10 – lines 38 to 45). The free layer 30 may include two layers 28,29 which may take the form of CoFe and NiFe (column 11 – lines 10 to 15).

As per claims 1, 5-7, 11, and 15-17: Hasegawa does not expressly disclose a spacer layer between the free layer and the portion of the biasing layer that overlaps the free layer.

Official Notice is given that it was notoriously old and well known in the art to cover an upper free layer with a protective layer or seed layer that would read on the claimed spacer layer.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the GMR/tunneling sensor of Hasegawa with a spacer layer on the free layer between the free layer and the portion of the biasing layer that overlaps the free layer. The motivation would have been: such a layer was provided to improve the characteristics of the layers formed thereon, and/or to make easier the formation of layers thereon, and/or to prevent undesired diffusion between the free layer and layers formed thereon, and/or to otherwise protect the free layer.

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As per Claims 8 and 18: Hasegawa does not expressly disclose his sensor stack as being formed on seed layer.

Official Notice is given that it was notoriously old and well known in the art to begin a layer stack with a seed layer.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the GMR/tunneling sensor of Hasegawa with a seed layer beneath the sensor stack. The motivation would have been: such a layer was provided to improve the characteristics of the layers formed thereon, and/or to make easier the formation of layers thereon, and/or to prevent undesired diffusion between layers.

Allowable Subject Matter

4. Claim 21 is allowed. Claims 2-4, 9, 12-14, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 10 and 20 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jefferson A. Evans whose telephone number is 571-272-7574. The examiner can normally be reached on Monday to Friday, 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Thi Nguyen can be reached on 571-272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'JAE', followed by a series of stylized, overlapping loops and a horizontal line.

JAE
August 18, 2006

Jefferson A. Evans
Primary Examiner
Art Unit 2627

JEFFERSON EVANS
PRIMARY EXAMINER